



Statewide DTV Transport System

# **Iowa Public Television**

## **Statewide DTV Transport System**

# **Standard Acceptance Test Plan Procedure**



## Statewide DTV Transport System

**The standard test plan for the Statewide DTV Transport System Integration will be conducted in three phases. Listed below is a brief description of each phase.**

Phase 1 is a procedure for verifying system connectivity and design compliance, using system flow diagrams as the test documents.

Phase 2 is a procedure for verifying the quality of the specific signals along a critical broadcast path.

Phase 3 is a procedure to verify that IPTV receives all Harris-supplied equipment as stated in the signed contract document.

**The standard three-phase test plan will be performed by Harris personnel and witnessed by an authorized representative of IPTV as part of the final acceptance procedure. A punch list, if required, may be generated from the results of the test procedure of items to be corrected, completed, or items that are incorrect or missing per the contract. The punch list will be reviewed by IPTV, and the test plan results and the punch list will be accepted and signed by IPTV. This will constitute a conditional acceptance of the system. Upon the completion of the punch list items, the customer will accept the total system as complete.**

### **Statewide DTV Transport System Integration Standard Test Plan**

#### **Phase 1- Procedure**

A path test will be done on the cabling connections as shown in the approved flow diagrams to verify that the system is built as specified. The signal found on the path (Pgm, Pvw, Key) or a simple verification signal of the appropriate type (SDV, composite, AES) will be fed into the cable path. The signal will be received with the equipment at the destination of the cable and be verified; or QC equipment available in the system may be used to verify that the signal is satisfactory. System QC equipment will be used to provide signals, or verify them, as much as possible, to allow IPTV to repeat the tests on their own in the future. Signal verification is on a pass/fail basis as appropriate for the signal type.

After verification, the path will be highlighted on the flow diagram. A highlighted path indicates that the cable has passed and is installed correctly as shown on the drawing. The flow diagram is now part of the test documentation. Cable paths will be checked on the following list of drawings.

#### **Drawing List Example (Drawing numbers and titles will be revised after final design approval)**

<b><u>Drawing No</u></b>	<b><u>Drawing Title</u></b>	<b><u>Revision Level</u></b>	<b><u>Completed</u></b>
xxxVO	All Video Flows	x	<input type="checkbox"/>



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xxxAO	All Audio Flows	x	<input type="checkbox"/>
xxxCO	All Control Flows	x	<input type="checkbox"/>
xxxIO	All Intercom Flows	x	<input type="checkbox"/>
xxxPO	All Pulse Flows	x	<input type="checkbox"/>
xxxTO	All Tally Flows	x	<input type="checkbox"/>

### **Phase 1 deliverables**

1. Final drawing checklist with test completions.
2. Set of drawings with all signal paths highlighted to indicate signal verification has passed.
3. Approved punch list.

### **Phase 2 Procedure**

This procedure is for verifying the quality of the various signals along a critical broadcast pathway. A specific number of critical broadcast pathways are defined during the proposal process. These tests will use the appropriate system test equipment to provide a predetermined end-to-end check of the test signal as it passes through the system. Using the System Transmission QC Area to provide the test signals and measurements will provide IPTV repeatability of the tests. IPTV will witness all tests.

Based on the type of signal path chosen the proper test procedure will be followed to verify signal integrity. The proper signal type will be routed through the critical broadcast path. The output of this path will then be fed to the transmission QC and evaluated. Signal verification is on a pass/fail basis as appropriate for the signal type.

The critical path will then be marked on the drawing as completed. If IPTV requires more than the minimum number of tests as laid out in the proposal, a cost for added time and materials will be applied on a per pathway basis. Measurement types are listed below. A sample list of critical pathways for IPTV is also found below.

Based on the various types of test equipment available different test procedures may be followed. A determination of the tests required will be finalized during the design phase. Listed below is a group of standard signal type tests.

For this project, Harris has committed to perform Quantity critical path tests, as included in our scope of work.



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Composite Video test      See attachment TEST A

SDV test      See attachment TEST B

Analog Audio test      See attachment TEST C

AES audio test      See attachment TEST D

Attachments will be provided during the design phase based on the test equipment chosen.

### **Phase 2 deliverables**

1. Critical Signal Path checklist with test completions.
2. Set of drawings with all critical signal paths highlighted to indicate signal verification has passed.
3. Approved punch list



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### Critical Signal Path Descriptions

#### **Signal Path 1 (Sample) TEST B**

**Completed**

Serial Digital Bars at router input 31 will be routed to router output 9. Router output 9 feeds the Miranda 1602 - 16x2 switch at input 1. Switch out 1 feeds the input of GVG 8960 ENC - D/A 6. Serial out 2 of D/A 6 feeds the signal panel output –Xmit Serial Digital Program. This output will be fed back to the Master QC Tektronix 601 Scope.

#### **Signal Path 2 (Sample) TEST A**

**Completed**

SMPTE bars at router input 32 will be routed to router output 9. Router output 9 feeds the 16x2 switch at input 1. Switch out 2 feeds the input of GVG EQ VDA 1. VDA 1 feeds the signal panel output –Xmit Program. This output will be fed back to the Master QC Tektronix 1750 Scope.

#### **Signal Path 3 (Sample) TEST B**

**Completed**

Serial Digital Bars at DD35 input 0 will be switched to DD35 program out 1. Program out 1 feeds the input of GVG 8960 ENC - D/A 5. Serial out 2 of D/A 5 feeds the signal panel output –Xmit Serial Digital Program. This output will be fed back to the Master QC Tektronix 601 Scope.

#### **Signal Path 4 (Sample) TEST B**

**Completed**

Serial Digital Bars at DD35 input 0 will be switched to DD35 program out 1. Program out 1 feeds the input of GVG 8960 ENC - D/A 5. PAL out 1 of D/A 5 feeds the signal panel output –DD35 Program Out. This output will be fed back to the Master QC Tektronix 1741 Scope.



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### Phase 3 procedure

To verify that IPTV receives all Harris supplied equipment as stated in the signed contract document. The contract and all additional change orders have been reviewed and the requirements and deliverables have been provided in the checklist below. Each item in the list will be located and identified and the list will be check-marked with a **Delivered** indication.

#### Equipment list (Sample)

Qty	Mfg.	Model	Description	Delivered
<b>Character Generator</b>				
1	Princeton	APP520	15" TFT Flat Panel- XGA Graphics	
1	Sharp	LC-150M2U	15" LCD Video Display	
<b>PRODUCTION MONITOR WALL</b>				
Program and Preview				
2	Sony	BKM30E20	Rackmount Kit for 20" Series Monitors	
1	Crown	D75	Audio Amplifier	
1	Clearcom	ICS-1016	32 Key Push Button Station	
<b>MONITOR WALL AUDIO</b>				
2	JBL	Control-1	Personal Size Two Way Speaker	
2	JBL	MTC-1A	Wall Mount Bracket (Black)	
1	Crown	D75	Audio Amplifier	
<b>BIG SCREEN 1 and 2</b>				
2	Sharp	LC-150M2U	15" LCD Video Display	
1	Clearcom	ICS-1016	32 Key Push Button Station	
<b>TERMINAL EQUIPMENT</b>				
10	Leitch	AMD-880	Mono Analog Audio DA's	
1	Leitch	FR-884	Frame and Power Supply	
1	Leitch	884PS	Redundant Power Supply	
5	ADC	BPOP1-HNBG	2x48 Bantam Jackfield	
10	ADC	G3B	Green 3' Bantam Audio Patch Cords	
10	ADC	B4B	Blue 4' Bantam Audio Patch Cords	
10	ADC	R6B	Red 6' Bantam Audio Patch Cords	

### Phase 3 deliverables

1. Completed deliverables check list.
2. Approved punch list



## Statewide DTV Transport System

# STATEWIDE DTV TRANSPORT SYSTEM INTEGRATION Project Acceptance

IPTV  
Des Moines, Iowa

IPTV and Harris Corporation, Broadcast Division agree that the System described in the contract document, dated xxx/xx/2003, and subsequent change orders have been installed, tested and are operational.

Therefore, in accordance with the contract documents, IPTV accepts the System as complete, with the list of exceptions attached and authorizes Harris to invoice for the work performed to date. Upon the completion of the punch list items, Harris will invoice any outstanding amount.

\_\_\_\_\_ Date \_\_\_\_\_

For Iowa Public Television

\_\_\_\_\_ Date \_\_\_\_\_

For Harris Broadcast Systems  
Mason, Ohio



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### Exceptions Punch List:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_
11. \_\_\_\_\_
12. \_\_\_\_\_
13. \_\_\_\_\_
14. \_\_\_\_\_

\_\_\_\_\_ Date \_\_\_\_\_

\_\_\_\_\_ Date \_\_\_\_\_

For Iowa Public Television

For Harris Broadcast Systems  
Mason, Ohio